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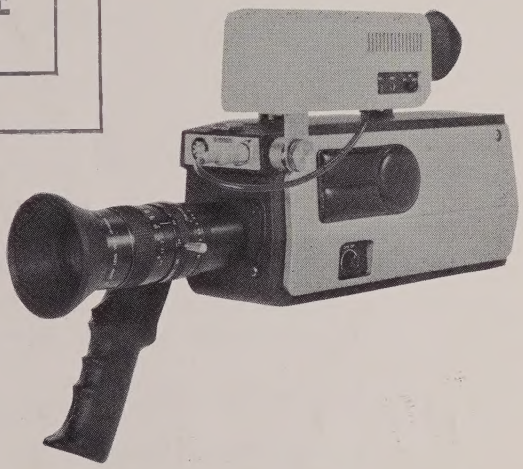

1521N

MODEL **GP-7U(C, E, K)**

PORTABLE COLOR CAMERA

OPERATION MANUAL

Hitachi Denshi, Ltd.

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WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

MODEL GP-7U(C,E,K)

PORTABLE COLOR CAMERA

Operation Manual

I. INTRODUCTION

This color camera employs an advanced 3-electrode single tube pickup system that offers superb performance in addition to true portability.

A wide selection of options is avilable to allow incorporation into studio, telecine and other types of television systems.

Features

1) Optional external sync unit is available that permits use with genlock system external synchronization.

2) Multiple power source operation

*Internal battery (separately sold) can provide approx. 1.5 hours operation when fully charged (at 20 °C ambient temperature).

*Special AC adaptor (separately sold) allows operation from commercial AC source.

*When connected to Hitachi SV-340 portable VCR, operating power becomes supplied from the VCR.

3) Color temperature is adjustable for easy operation according to type of illumination (adjustment range: 3000 to 10,000 °K).

4) Automatic sensitivity control (ASC) eliminates need for iris adjustments during normal operation.

5) In addition to built-in microphone, an external microphone can be mounted to camera body. When installed, operation becomes automatically switched to external microphone.

6) Standby/operate switch is provided in order to efficiently utilize pickup tube operating life. In standby mode pickup tube electron beam is shut off.

7) Easily connected to portable VCR.

Only a single cable is needed for connection to the Hitachi SV-340. VCR start/stop can be remotely controlled by a switch on the camera hand grip. When used with the VM-151A electronic viewfinder, a red lamp in viewfinder lights when hand grip switch is activated.

2. CAUTIONS

1) Avoid fire or explosion hazards.

Since this camera contains high voltage circuits, it must not be used in such locations as gasoline filling stations and other areas containing inflammable or explosive materials or atmospheres.

2) Protect from moisture and dust.

Contamination of camera interior by water or dust can lead to malfunction or damage. Do not use camera in rain or snowfall.

3) Avoid strong vibration and shock.

Whenever possible, employ optional carrying case (CL-7) when transporting the camera.

4) Use care regarding temperature and humidity.

*Picture quality can be impaired or damage caused by using camera in locations with temperatures above +40 °C or below 0 °C.

*Note that extremely high temperatures can be reached inside an enclosed automobile, particularly when located in direct sunlight.

*If camera is used or carried outdoors during cold weather, moisture condensation can occur in the camera interior. In such circumstances, allow camera to dry naturally and thoroughly before using.

5) Avoid strong electromagnetic and magnetic fields.

Noise or impaired picture can occur if camera is employed near radio or TV broadcast antennas, magnets, motors, TV receivers or other sources of strong electromagnetic and magnetic fields.

6) Do not pickup direct sunlight or strong reflected light.

Camera must not be pointed toward the sun or other extremely bright light source. These can immediately and permanently damage the pickup tube (even with power off). Particularly outdoors, use care to cap lens when camera is not being operated.

7) Do not touch pickup tube

Fingerprints and other types of contamination can reduce

picture quality and lead to chemical deterioration of pickup tube target. Use care not to touch pickup tube when lens is removed.

8) Do not open camera side panels.

Camera contains high voltage circuits. Opening the side panels presents both a shock hazard and risk of damage. In event of difficulty, contact Hitachi Denshi sales agency.

9) If camera is not used for an extended period of time (longer than 3 months), set operate/standby switch to standby. Supply power and allow camera to warm up for about 1 day. This practice will aid in ensuring reliable operation.

10) Some types of lenses can introduce picture distortion. contact Hitachi Denshi sales agency for recommended lenses.

11) Use only specified power supplies. Other types of power supplies (AC adaptors, etc.) can cause malfunction and damage.

3. COMPOSITION

1) Standard Composition

*Camera, GP-7	1
*Operation Manual	1

2) Optional Accessories

*1.5" Electronic Viewfinder, VM-151A

*1.5" Electronic Viewfinder, GM-1A

*Battery Pack, DP-60

Inserted inside camera. Provides approx. 1.5 hours operation when fully charged and operated at 20°C. Must be recharged only with the BC-60 Battery Charger. Do not employ other types of chargers as these can cause damage.

*Battery Charger, BC-60

Specially designed for recharging DP-60 Battery Pack. Must not be used to recharge other types of batteries.

*Battery Belt, PB-20A

Belt type battery power source. When fully charged, provides approx. 3 hours operation at 20°C. Must be recharged only with the BC-20B Battery Charger. Other types of chargers can cause damage.

*Battery Charger, BC-20B

Specially designed for recharging PB-20A Battery Belt. Must not be used to recharge other types of batteries.

Operation Panel, OP-7

Allow camera to be incorporated into TV system.

*Camera Cables, C-152CC & C-502CC
(15 m) (50 m)

Use for system operation.

*Camera-VTR Cables, C-201CK & C-501CK
(2 m) (5 m)

Cables for operation with VTR.

*Carrying Case, CL-7

*Video Cable, VBA-100

10 m coaxial cable with UHF type and BNC type connectors.

*Microphone, MC-30B

*Genlock Unit, GL-7

External sync unit for genlock system operation.

*Hand grip, GR-60

*Zoom Lens, V6 x 17, X6 F : 2

*Fixed Lens, C25SL, 25mm F : 2

*Shoulder Pad, SP-7

*AC Adaptor, AP-60

*Service Manual

4. SECTION NAMES AND FUNCTIONS

1) Camera Head (see Fig. 1)

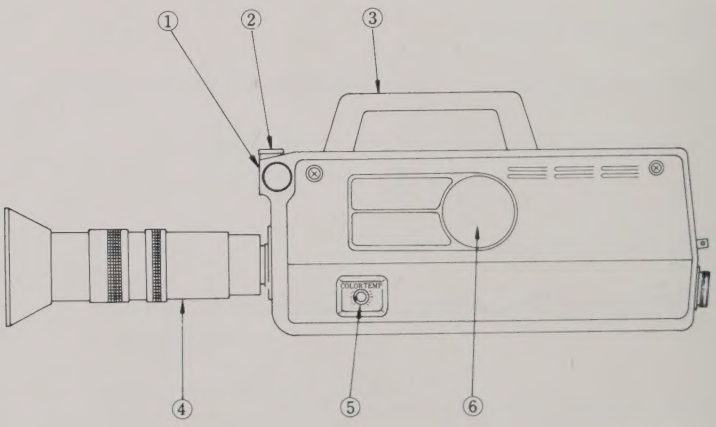

Fig. 1 Camera Head Side Panel

① Viewfinder Mount

Install connecting bracket of VM-151A or GM-1A viewfinder to this point.

② External Microphone Receptacle

Mount optional external microphone MC-30B to this receptacle.

③ Handle

④ Lens

⑤ Color Temperature Knob

Use to adjust color temperature according to type of scene illumination.

⑥ Check Rest

2) Camera Head Front Panel (see Fig. 2)

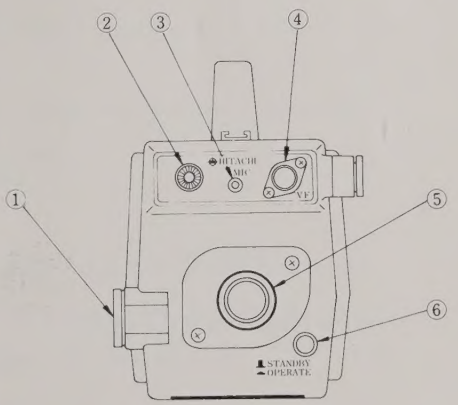

Fig. 2

Camera Head Front Panel

① Hand Grip Mount and VTR Control Switch

Secure hand grip GR-60 to this mount. Central button is VTR control switch and when pressed, ON or OFF is obtained. When set to ON, recording can be performed with portable VTR.

② Built-in Microphone

Use for sound pickup.

③ External Microphone Jack

Optional external microphone MC-30B can be connected to this jack for sound pickup (Internal microphone becomes automatically switched off.).

④ Viewfinder Connector

Connect cable from VM-151A or GM-1A viewfinder.

⑤ C Mount

⑥ STANDBY - OPERATE Switch

Set to OPERATE when picking up scene. When not using camera, set to STANDBY in order to protect pickup tube.

3) Camera Head Rear Panel (see Fig. 3)

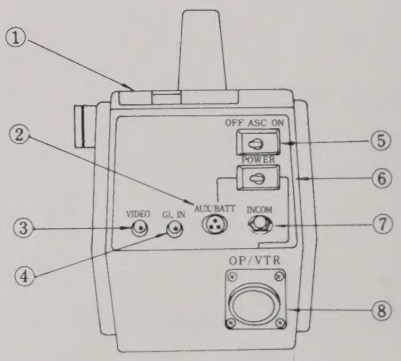

Fig. 3

Camera Head Rear Panel

① Battery Cover

Remove cover to install optional Battery Pack DP-60.

② Power Input Connector

Connect optional Battery Pack DP-60, Battery Belt PB-20A or AC adaptor AP-60.

③ Video Output Connector

Connector for color video output signal. Use coaxial cable for connection.

④ VBS Input Connector

Connector for VBS signal during genlock operation.

⑤ ASC (Automatic Sensitivity Control) ON-OFF switch.

⑥ POWER Selector Switch

Set to right when power is being supplied from OP/VTR connector ⑧ .

Set to left when power is being supplied from power input connector ② .

⑦ Intercom Jack

During system operation, headset can be connected to allow voice communication.

⑧ OP/VTR Connector

Connect optional operation Panel OP-7 or portable cassette VTR. Cannot be employed simultaneously with video output connector ③ or genlock VBS input ④ .

4) VM-151A Viewfinder Side Panel (1)

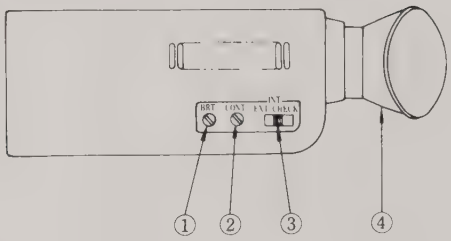

Fig. 4 VM-151A Viewfinder Side Panel (1)

① BRT (Brightness) Control

② CONT (contrast) control

③ Video Input Selector Switch

Set to INT to view image being picked up by camera. For white balance adjustment, set to CHECK position. Set to EXT to view VTR playback picture.

Note: With some VTR models, playback picture can be viewed at INT position. Although sync signal may appear within picture in these cases, recorded picture is not affected.

④ Eye Hood.

5) VM-151A Viewfinder Side Panel (2)

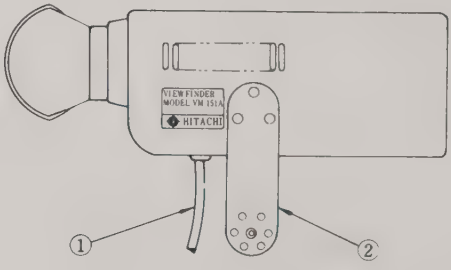

Fig. 5 VM-151A Viewfinder Side Panel (2)

① Viewfinder Cable

Power, video signal, etc. are supplied from camera head.

② Coupling Bracket

Use to secure viewfinder to camera head.

6) VM-151A Viewfinder Indicators

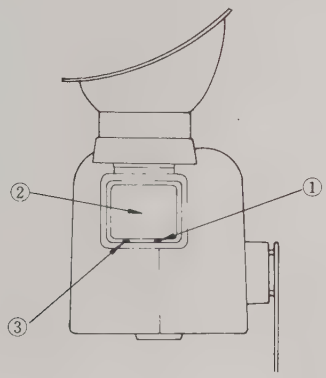

Fig. 6 VM-151A Viewfinder Rear Panel

① Tally Lamp

Lights when VTR control switch is ON.

② CRT

③ Battery Check Lamp

Green lamp lights 2 - 5 minutes before limit of battery pack operation. This time may vary somewhat according to ambient temperature and battery condition.

7) GM-1A Viewfinder (see Fig. 7)

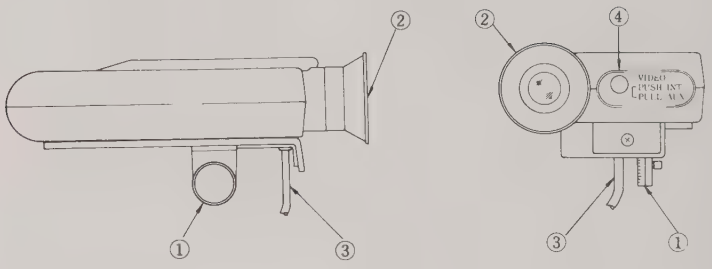

Fig. 7 GM-1A Viewfinder

① Coupling Bracket

Use to secure to camera head.

② Eye Hood (Eye Cap)

Can also be used when opened upward.

③ Viewfinder Cable

Power, video signal, etc. are supplied from camera head.

④ Video Input Selector Switch

Set to INT to view scene being picked up by camera. To view VTR playback picture, set to AUX.

Note: With some VTR models, playback picture can be viewed at INT position. Although sync signal may appear within picture in these cases, recorded picture is not affected.

8) Other Equipment

Be sure to read operation and installation manuals of all equipment and accessories employed in the system.

5. CONNECTIONS

1) System Composition for External Sync Operation

a. Connection Example (see Fig. 8)

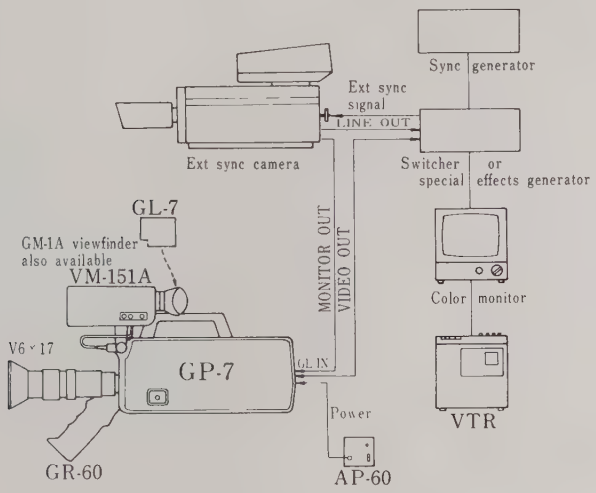

Fig. 8 Connection Example (External Sync)

b. Basic Operation

*Use optional AC adaptor AP-60 for input power supply. Connect to power input connector Fig. 3-(2) and set power selector switch Fig. 3-(6) to AUX/BATT position.

*Consult Hitachi sales agency for optional Genlock Unit GL-7 installation.

*VBS signal for genlock operation is terminated within camera at 75Ω.

*Video output impedance is 75Ω. Terminate signal at 75Ω at final unit (monitor, etc.) connected in series with signal.

*Outdoors:

Since lighting conditions are complex and uneven, set ASC ON-OFF switch of camera head rear panel to ON. Adjust lens iris so that adequate level is obtained even with darkest portions of scene.

*Indoors:

If lighting conditions are stable, ASC ON-OFF switch can also be set to OFF. In this case, video signal level varies according to lens iris setting. Adjust lens iris for suitable signal level.

2) Connections Using Operation Panel

a. Connection Example (see Fig. 9)

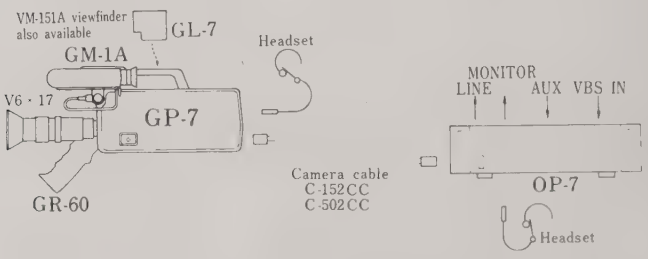

Fig. 9 Connection Example (with OP-7)

b. Basic Operation

Use camera cable C-152CC or C-502CC to connect operation Panel OP-7 and color camera GP-7. This allows intercom, tally call, master pedestal adjustment and other functions for system operation. For detailed data and assistance, refer to the OP-7 operation manual and contact Hitachi Denshi sales agency.

3) Portable Operation

a. Connection Example (see Fig. 10)

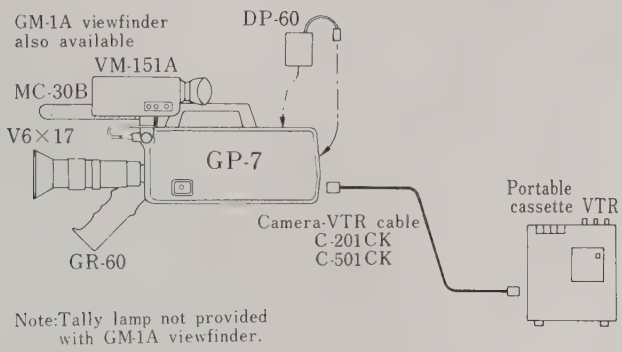

Fig. 10 Connection Example (portable operation)

b. Basic Operation

*Camera - VTR Cable

Special cables C-201CK and C-501CK are available for camera - VTR connection. However, since not all VTR models are compatible, contact Hitachi Denshi sales agency.

*When hand grip is installed, trigger on grip operates VTR control switch. Press once for ON; press again for OFF.

NOTE: DP-60 HAS AN INTERNAL BAG AMP FUSE. BLOWN INDICATION, UNIT REFUSES TO TAKE A CHARGE. REMOVE 4 SCREWS AND COVER, FOR ACCESS

*Rechargeable Batteries

An optional battery pack DP-60 can be installed in camera by opening battery cover. This provides approx. 1.5 hours continuous operation (at 20°C, when fully charged). A special battery charger BC-60 is used for recharging the battery pack.

A belt type battery power source BP-20A is also available for externally supplying camera power.

This provides approx. 3 hours continuous operation (at 20°C, when fully charged). A special charger BC-20B is used for recharging the battery belt.

CAUTION: Be sure to use only specified battery-charger combinations. Battery must be recharged only by its companion charger. Conversely, charger must not be used to recharge other types of batteries.

*External Microphone

A built-in microphone is provided for simultaneous pickup of sound and picture. In cases where higher sound quality is desired, an optional external microphone MC-30B is available. Since microphone is highly directional, sound close to the subject is picked up while extraneous surrounding sounds and noise are cut, resulting in close relationship between picture and sound.

The external microphone is an electret condenser type and requires power supply from the camera. It therefore must be used together with the camera.

4) Connection and Operation of Other Equipment

Perform in accordance with operation manuals of such equipment. Contact Hitachi Denshi sales agency.

6. SCENE LIGHTING

Correct scene lighting is essential for obtaining attractive and impressive color pictures.

Subject Illumination

*The GP-7 is designed for optimum performance with 2000 lux illumination, 60% reflectivity and 3000°K color temperature (with ASC ON).

*Although 2000 lux is standard, acceptable pictures can be obtained when illumination is above 200 lux. Below 200 lux, picture becomes dark and lighting inadequacy noticeable to the viewer. An ND filter becomes required when illumination exceeds 100,000 lux. Following ND filters are available.

For zoom lens (V6 x 17): 58 mm screw pitch 0.75 mm

For fixed lens (C25SL): 37.5mm screw pitch 0.5 mm

7. COLOR TEMPERATURE ADJUSTMENT

The human eye possesses an adaptability with respect to light. For example, when a white object is viewed with indoor illumination, then brought outdoors, it still appears white. However, since a camera does not possess this adaptability, the same object appears reddish indoors and bluish outdoors, as viewed by the camera. The color temperature control is provided in order to compensate for this phenomenon. Standard control settings are shown in the following table, however, for best results, adjust while viewing display on color monitor.

Control Setting	Scene Lighting	Adjustment	Approx. Color Temp.
	Indoors (halogen or tungsten lamp)	Set to this position for indoor pickup with halogen or tungsten lighting.	3000 - 3200 °K
	Indoors (white fluorescent illumination)	This position is suitable for indoor pickup with white fluorescent lighting. For scenes with a mixture of incandescent and fluorescent lighting, set to position intermediate between this and above.	4500 °K
	Outdoors (clear sky)	Set to this position for pickup outdoors with clear sky.	5100 °K
	Outdoors (cloudy sky) Indoors (day-light fluorescent)	This position is suitable for pickup outdoors with overcast sky or indoors with daylight fluorescent lighting.	6000 - 6500 K

8. VIEWFINDER(VM-151A) OPERATION

1) CONT (Contrast) Control

Use screw driver to adjust for suitable contrast while observing picture on viewfinder.

2) BRT (Brightness) Control

Use screw driver to adjust for suitable brightness while observing picture on viewfinder.

3) Input Selector Switch

Normally set to INT. Set to EXT to view VTR playback picture or preview picture being recorded by VTR (If VTR is equipped with this feature). With some VTR models, playback picture can also be viewed at INT setting.

For color temperature adjustment, set switch to CHECK position and pickup a white pattern with camera. Adjust so that white vertical line appearing in viewfinder picture becomes as narrow as possible. Contact Hitachi Denshi sales agency.

4) Tally Lamp

Located in front of viewfinder. Employed for cuing camera operator during system operation and indicating recording mode when used with a portable cassette VTR.

9. MAJOR SPECIFICATIONS

Color System	U, C: Based on NTSC system E, K: Simplified PAL system
Pickup Tube	3-electrode vidicon (HS-251 or equivalent)
Sync System	Internal and external (with GL-7)
Scanning Lines	U, C: 525 lines 2 : 1 interlace E, K: 625 lines "
Video Output	1 Vp-p 75Ω (unbalanced)
Video S/N	More than 40 dB

Standard Subject Illumination	2,000 lux (with ASC ON)
Resolution	More than 250 lines (center)
Minimum Illumination	100 lux (F2)
Microphone	Unidirectional electret condenser
External Microphone	MC-30B (separately sold)
Audio Line Output	-20dB or -65dB
Color Temperature Adjustment	From tungsten incandescent to overcast sky
Automatic Sensitivity Control Range	100 - 100,000 lux
Power Supply Voltage	DC 12V (nominal)
Power Consumption	8.5 W w/VM-151A: 10.8W w/GM-1A: 10.8W w/VM-151A & GL-7: 13.5W
External Dimensions	146 (H) x 142 (W) x 339 (D) mm (camera head only)
Weight	5.6 kg (camera head, VM-151A, GR-60, V6 x 17)
Lens Mount	C mount

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Printed in Japan 79011TS693Y320AX